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Report on the
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REPORT ON THE DEPARTMENT OF ENERGY DEBRIEFING

ON MONTANA'S SUPERCONDUCTING SUPERCOLLIDER (SSC) APPLICATION

Teresa Olcott Cohea, Co-Chair
Governor's Superconducting Supercollider Task Force

On February 22, 1988, Paul Schmechel and I attended a two-hour debriefing session at the Department of Energy (DOE), Washington, D.C., concerning Montana's application to be the site of the superconducting supercollider. It was evident at the debriefing that DOE officials had carefully reviewed Montana's application and were very familiar with it. They spoke from substantial notes on our application and repeatedly referred to specifics contained in it. These DOE officials were members of the SSC Site Task Force that made recommendations to the Secretary of Energy concerning the National Academy of Sciences and the National Academy of Engineering selection of sites for the "Best Qualified List." As background for this recommendation, the SSC Task Force members reviewed each state's application and discussed them with the Academies' members and their staff after the Academies completed their selection. These DOE officials were:

Bob Strickler, member of the Environment Subcommittee
Bob Zich, member of the Regional Resources Subcommittee
Dan Lehman, member of the Geology and Tunnelling Subcommittee

Summary of the briefing

The DOE officials said Montana's application was "impressive," "well-prepared," "organized in a manner that made it easy to evaluate," and "a pleasure to read."

In making the Best Qualified List (BQL) selections, the Academies narrowed the selection criteria to two: geology and regional resources. In the first, DOE officials said Montana was "above average"; in the second, we were "below average" for this project. They itemized Montana's specific strengths and weaknesses in the top three criteria on the attached sheet.

DOE officials emphasized that our site has low seismicity; good tunnelling material; and would allow a relatively shallow tunnel -- all positive points. They said that the SSC could be built in Comanche Basin with "no problems" geologically.

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Our deficiencies in the regional resources criteria related directly to the lack of a large population center near the site. (Five of the sites on the BQL list are within 60 miles of a city of one million people or more, and the remaining two were within 40 miles of cities with over 525,000 people.) DOE officials found that the relatively small population (134,000 people) in the four counties surrounding Montana's site created limited employment opportunities for spouses, lack of adequate housing, and limited cultural opportunities. They also cited the lack of a "nationally recognized" nuclear or particle physics research lab within commuting distance and a well-developed, high-technology infrastructure near the area as examples of our lack of regional resources.

They said that successful completion of large construction projects, such as the $2 billion Colstrip units, indicated that the SSC could be constructed at the Montana site successfully. But they felt the lack of sufficient high-tech infrastructure (machine works, electronic suppliers, pools of specialized laborers) near the site would make efficient operation of the project difficult. As one DOE official summed it up, "Broadview is not Silicon Valley".

However, even within this category DOE noted several strengths Montana exhibited:

1) Education They found our primary and secondary education "good to impressive," citing our low pupil/teacher ratio, high ACT scores, good ratio of computers to students, and high per capita spending for education. Similarly, they found the vocational-technical training offered in Billings to be a real strength, as well as the job training programs offered through the Private Industry Council. They said the physics programs at U of M and MSU were "impressive," but too distant to be of immediate use at the site.

2) Productive work force DOE noted that Montana's workers were ranked among the most productive in the nation by several national studies.

3) State support DOE noted the evidence of widespread support for the project included in the application. DOE officials praised the Governor for creating a special task force to prepare the state's application and for offering a single-stop permitting process if the project were built in Montana.

The DOE said that they had several requests from companies and research groups for access to states' applications. They said that the information on states' labor forces, education systems, transportation systems, and other characteristics make these documents valuable for relocation decisions. We noted Montana's application was already on file in several Montana libraries, and we would welcome its inclusion in the Library of Congress and any other public display.

SELECTION PROCESS

Attached is an excerpt from the DOE's Best Qualified Sites report, describing the procedure that the National Academy of Sciences and the National Academy of Engineering used in evaluating each state's application; the simultaneous review undertaken by DOE staff; and the subsequent discussion between these two groups that led to the Secretary of Energy's decision to make no changes in the Academies' recommendations.

At the debriefing, the DOE officials explained this procedure in detail and answered our questions regarding it. As the excerpt notes and DOE officials emphasized, 8 of the 21 members on the working groups are currently or have been managers at large scientific facilities. In addition, working group members contacted directors of other large research facilities to learn what factors they felt contributed to efficient operation of the facilities and the ability to attract and retain qualified staff. In the debriefing, it was obvious that these factors were key in the Academies' selection process.

It was clear from the debriefing that Montana's application had been carefully considered. DOE officials spoke knowledgeably about it, recalling many of its specific details.

CRITERIA THAT WERE NOT USED IN THE SELECTION PROCESS

DOE officials said that only the two criteria ranked highest in the Invitation to Bid (geology and tunneling and regional resources) ended up determining the finalists. They said that all states' applications were so similar in the other criteria areas that no meaningful differences emerged. On "Utilities," for example, all sites but one were able to provide a reliable energy supply and a potable water system at the site. Similarly, no site (as presented in the application) posed environmental issues that precluded construction of the SSC.

I was surprised that the life cycle cost, which had been such a prominent part of the Invitation to Bid, was not used in making the final selections. DOE officials said that the costs for all states were within 5 percent (plus or minus) of each other, so it was not considered a significant difference. DOE did say the cost at Montana's site was at the lower end of the range.

Local opposition to a site was not a significant factor, either, according to DOE officials. The Academies did not consider anything demonstrating either support or opposition unless it was included in the state's application. They felt that they could not determine the extent or "weight" of the petitions, etc. they received outside the application process. (As you are aware, the Academies selected New York's Rochester site for the Best Qualified List, but New York's governor withdrew the site in late December because of intense local opposition to the project being built there.)

Nor did the Academies consider the differing degrees of difficulty in building the project in a heavily urbanized area (such as in the Chicago suburbs) compared to sparsely settled areas. DOE officials said that each state had outlined a process for obtaining the necessary land within the designated time frame.

MORE DETAILS ON REGIONAL RESOURCES

Transportation

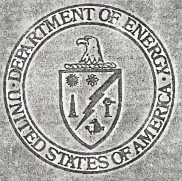
DOE officials said our highway system and access to the site were good. Rail services were adequate, and the public transportation system would be adequate for the project with the planned improvements mentioned in our application. However, they found air transportation into Billings limited in frequency and destination. They said the Academies' members favored locations at which staff scientists could teach classes at the university one day, fly to the SSC site for the next day, and be back in their classrooms on the third day. Interestingly, DOE did not place much emphasis on how much ground time it took to get from the airport to the site. So, the short, traffic-free drive from Billings Logan International Airport to Broadview as compared to the seventy-mile drive from Colorado's site to the airport was not given significant consideration.

Environment

Although the third highest weighted criteria -- environment -- was not used in the final selection, DOE officials briefed us on this aspect of Montana's application. They said we were "above average" in this criteria, with no significant negative impacts if the project were built at the site. Although the summary sheet of strengths and weakness (attached) lists some weaknesses of our site in this area, Mr. Strickler said they were "not really weaknesses; just areas that would require further analysis".

FUTURE PROSPECTS FOR SSC

DOE has begun the environmental reviews of the seven BQL sites; holding initial scoping meetings (as required by the National Environmental Policies Act) near each site. DOE officials said they feel that the Congressional vote on this request was a key test of support for the project and could indicate whether it would be built. However, they emphasized that the timetable for construction of the facility could be lengthened, lessening the amount of funds needed in FY89. They urged states that were not on the BQL list to continue their support for the project.



BEST QUALIFIED SITES

FOR THE

SUPERCONDUCTING SUPER COLLIDER

Report of the
United States Department of Energy
Superconducting Super Collider
Site Task Force

January 1988

BEST QUALIFIED SITES FOR THE SUPERCONDUCTING SUPER COLLIDER

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A. Introduction

The Superconducting Super Collider (SSC) site selection process announced by Secretary of Energy John S. Herrington on February 10, 1987, included the establishment of an SSC Site Task Force (Task Force) reporting to the Director of the Department of Energy's (DOE) Office of Energy Research.

The Task Force was formally organized on February 27, 1987, by the Director of Energy Research under the Chairmanship of Dr. Wilmot N. Hess, Associate Director of the Office of High Energy and Nuclear Physics. Its members include: key senior personnel from the Office of Energy Research; Office of General Counsel; Assistant Secretary, Management and Administration; Assistant Secretary for Environment, Safety and Health; and the San Francisco Operations Office.

The Task Force is a major element in the implementation of the SSC Site Selection Process. Specific activities of the Task Force include: development of site evaluation criteria and cost considerations to be used in site selection; preparation of the Invitation for Site Proposals for the SSC (Invitation); screening proposals to determine which are qualified; review and validation of the National Academy of Sciences/National Academy of Engineering (Academies) Super Collider Site Evaluation Committee (Academies' Committee) report and recommended Best Qualified List of site proposals; conducting Best Qualified List site visits; implementing the Environmental Review Process; conducting cost analyses; confirming geotechnical and other information provided by Best Qualified List site proposers; and performing a comprehensive evaluation of Best Qualified List site proposals.

This report describes the activities undertaken by the Academies' Committee in developing a recommended Best Qualified List of sites and those of the Task Force in their review and validation of the Academies' Committee report and recommended Best Qualified List.

B. The Academies' Evaluation Process and Report

By prior agreement, the Academies were asked by the DOE to assist in the SSC site evaluation process by providing an independent evaluation of the qualified site proposals against the set of requirements issued by the DOE in the Invitation on April 1, 1987, and to recommend an unranked Best Qualified List.

The Academies' assistance was sought in the interest of enlisting an independent evaluation that would further the goal of a credible and objective site selection process. It was the opinion of the Department that the Academies' participation would provide a review of the proposals that met the highest standards in light of the National Academies' reputation for fairness and objectivity.

The Academies' Committee was established in June 1987, to evaluate qualified sites referred by the DOE and to recommend an unranked list of best qualified sites. The Academies' Committee was composed of persons particularly well qualified for the site proposal evaluation, having appropriate technical, professional, and management experience. Of particular note, 8 of the 21 members have extensive personal experience in the management of large scientific enterprises.

The DOE determined on September 17, 1987, that 36 of the 43 proposals it received in response to the Invitation were qualified and forwarded those proposals to the Academies' Committee. (One proposal was subsequently withdrawn by the proposer during the course of the Academies' Committee evaluation.)

The Academies' Committee formed seven working groups (one for each technical evaluation criterion and one for the life cycle cost). Each working group included at least one member who also served on another working group. The Academies' Committee agreed to a set of written evaluation procedures which it provided to the Task Force. These procedures were discussed with the Academies' Committee staff.

The Academies' Committee determined that adopting a rigid set of weightings to allow a mechanical method of rating proposals was essentially impossible and had potential technical and practical flaws. In lieu of this, each of the Academies' Committee working groups was charged with providing an initial evaluation (good, satisfactory, and questionable) on each subcriterion of each proposal, based upon the particular criterion for which the working group was responsible, as a basis for presentation to and discussion by the full Committee. The Academies' Committee

directed its staff to develop alternative methods of aggregation as tests of the Academies' Committee evaluation methodology. These test results revealed no basis for the Committee to change its conclusions.

The Academies' Committee did elaborate on several of the elements within the technical evaluation criteria, subcriteria, and life cycle cost considerations (e.g., for geology and tunneling, groundwater inflow into the tunnel and experimental halls during construction) that were considered in the evaluation of proposals. These elements are identified in the Academies' Committee report as "those items within the DOE-announced criteria and subcriteria and their relative importance, that are likely to be most critical in determining scientific productivity of the SSC laboratory." Specifically, "Because the SSC will be a very large national laboratory, its ability to recruit and retain a first-class staff is of utmost importance to its scientific success." Given the extensive experience in the management of large scientific enterprises represented on the Academies' Committee, it was well qualified to judge factors crucial to determining scientific productivity.

The Academies' Committee received and discussed reports from its working groups on the strengths and weaknesses of each of the 35 proposals during its final meeting. In order to make an explicit decision to include (or not to include) each site on the Best Qualified List, the Chairman asked that the full Committee discuss each site until a consensus was reached that it should or should not be placed on the Best Qualified List. The recommended Best Qualified List is unranked and at no point did the Academies' Committee consider what would be an appropriate number of Best Qualified List sites. Geographic distribution was not a factor in the Academies' Committee decision regarding the Best Qualified List, nor did the Academies' Committee process limit Best Qualified List sites to one per state.

The Academies' Committee report, "Siting the Superconducting Super Collider," which was forwarded to the DOE on December 24, 1987, identified eight sites that "merited inclusion" on the Best Qualified List. Listed in alphabetical order, the recommended Best Qualified List sites are:

Arizona (Maricopa)
Colorado
Illinois
Michigan (Stockbridge)
New York (Rochester)
North Carolina
Tennessee
Texas (Dallas-Fort Worth)

The Academies' Committee expressed full confidence that the recommended Best Qualified List represented the best collective judgment of the Committee (whose members were carefully chosen for their expertise and impartiality), and reflected a selection of those sites that best meet the selection considerations included in the Invitation.

Before release to the DOE, the Academies' Committee report was reviewed and approved by a committee of the National Research Council Governing Board to assure that it met their quality and content standards. It was formally transmitted to the Acting Director of the Office of Energy Research by the Presidents of the Academies.

C. Site Selection Task Force Deliberations

The Task Force, under the auspices of the Acting Director of Energy Research, was directed to review and validate the Academies' Committee report and recommended Best Qualified List upon receipt to determine whether the Academies' Committee evaluation process gave appropriate consideration to the technical evaluation criteria and subcriteria, and their relative importance, as well as cost considerations consistent with the Invitation.

In its review and validation of the Academies' Committee report, the Task Force has sought specifically to determine whether:

- The Academies' Committee complied with the requirements of the Statement of Work of its contract with the DOE;
- The results reflect a fair selection process, evaluating sites on their technical merit and cost considerations as described in the Invitation;
- The Academies' Committee has recommended a credible Best Qualified List for siting the SSC.

Prior to receipt of the Academies' Committee report, the Task Force discussed, in depth, each proposal in order to arrive at a more complete understanding and familiarity. The Task Force proposal review was accomplished by assigning lead responsibility for each technical evaluation criterion and the life cycle cost to an individual Task Force member. In consultation with Task Force members and advisors, as appropriate, each lead member assessed each proposal in his respective area of responsibility. Additionally, a summary presentation of the life cycle cost results was made to the Task Force by the DOE contractor, RTK, a joint venture of Raymond Kaiser Engineers, Inc., Tudor Engineering Company, and Keller & Gannon-Knight, on December 14, 1987.

The Acting Director of the Office of Energy Research received the Academies' Committee report on December 24, 1987, and copies were distributed to members of the Task Force. The members assessed the report during the period of December 24-28, 1987.

The Task Force met on December 28, 1987, to formulate questions to be discussed with the Academies' Committee staff. The questions covered the following areas: the Academies' Committee evaluation procedure; the application

and relative importance of the technical evaluation criteria, subcriteria, and cost considerations; the basis and rationale for determining the Best Qualified List sites; and a review of the significant characteristics of each of the qualified proposals.

On December 29, 1987, the Task Force had an all day meeting with the Academies' Committee staff members, including the Project Director, Project Manager, and Staff Officers. The Project Director outlined the evaluation methodology followed by the Academies' Committee in their evaluation process.

This process included the requirement that the Academies' Committee reach a consensus that a site was to be included or not to be included on the Best Qualified List. The Academies' Committee staff confirmed that the Committee evaluation was consistent with the guidance specified in the Invitation with regard to the relative importance of the technical evaluation criteria and cost considerations. The staff answered all questions raised and provided elaborations to the Task Force, where appropriate.

During the briefing by the Academies' Committee staff, the Task Force was provided with a description of the significant characteristics of each qualified site as discussed by the Academies' Committee. The Academies' Committee considered each technical evaluation criterion and the life cycle cost estimates in its evaluation of sites. The two most important technical evaluation criteria, as listed in the Invitation, i.e., geology and tunneling and regional resources, provided substantial discrimination among the sites. Some sites had characteristics in the environment criterion that distinguished them from other proposals, but as the Academies' Committee noted in its report, "no site proposal presented environmental problems that could not be prevented or minimized." There were some differences among proposed sites with respect to the setting and regional conditions criteria, but no site had negative setting or regional conditions sufficient to warrant its elimination on these bases alone. The last of the technical evaluation criteria, utilities, provided little discrimination among proposals. Life cycle cost estimates, as calculated for the DOE by RTK, did play a role in the Academies' Committee evaluation, but that role was minor because the estimates fell within such a narrow range.

The Task Force met on December 30, 1987, to review results of its meeting with the Academies' Committee staff and in subsequent days to prepare its evaluation of the Academies' Committee report.

D. Task Force Conclusions and Recommendations

In the interest of furthering a fair and objective siting decision process for the Super Collider, the Department commissioned the National Academies to conduct an independent evaluation of the qualified sites. Therefore, it was the opinion of the Site Task Force that the Academies' Best Qualified List recommendation should be accepted in full if: (1) it could be determined that the Academies complied with the requirements of the Department; and (2) there was an absence of any strong justification for altering the list.

Following a review and evaluation of the Academies' Committee report, the Task Force has concluded that:

- The Academies' Committee represented a highly qualified, credible and broad range of experience and expertise;
- The Academies' Committee methodology was consistent with the terms of the Invitation and the contractual Statement of Work agreed to by the Department and the Academies;
- The Best Qualified List recommended by consensus of the Academies' Committee was developed impartially and without bias;
- Based on the technical evaluation criteria and cost considerations specified in the Invitation, the eight sites on the Best Qualified List recommended by the Academies' Committee are supportable.
- The Academies' Committee has made an appropriate determination that important differences among the site proposals, principally in the two major criteria areas of geology and tunneling and regional resources, supported the Academies' Committee decision on the eight recommended sites for the Best Qualified List.

It is the unanimous recommendation of the Task Force that the Best Qualified List recommended by the Academies' Committee be accepted without modification.

SITE 6 - MONTANA

STRENGTHS AND WEAKNESSES

GEOLOGY AND TUNNELING

Strengths:

- o Tunnel in soft rock; good advance rate
- o Relatively shallow tunnel

Weaknesses:

- o Some weak, swelling rock requires special attention (i.e., sealing with shotcrete)
- o Significant portion of tunnel below water table
- o Moderate groundwater inflows expected at penetrations of fault zones and aquifers
- o Possible gas in coal beds
- o Adverse water chemistry (sulfate water) requires a special concrete

REGIONAL RESOURCES

The following regional resources factors are considered not as strong as those desired for an SSC site.

- o Proximity to communities offering diversified housing, services, and cultural opportunities
- o Proximity to major research universities
- o Availability of professional employment opportunities for family members of SSC staff
- o Accessibility via air for visiting researchers
- o Availability of a diverse, commercial technological support infrastructure and skilled labor pool

ENVIRONMENT

Strengths:

- o No Federal or state listed biota
- o No prime farmland

Weaknesses:

- o National Register site located in Area C (Antelope Stage Stop)
- o Potential for historic/archaeological site impacts
- o Spidel waterfowl production area located on ring
- o Potential effect on existing groundwater use
- o Area's air quality in non-attainment for total suspended particulates, carbon monoxide, sulfur dioxide (could present permitting problem for new power plant)
- o Potential for methane and radon in tunnel

3.0 PROCEDURES FOR SELECTION, QUALIFICATION CRITERIA, TECHNICAL EVALUATION CRITERIA, AND COST CONSIDERATIONS

3.1 PROCEDURES FOR SELECTION

3.1.1 General

The goal in evaluating sites is to select a site that will permit the highest level of research productivity and overall effectiveness of the SSC facility at a reasonable cost of construction and operation and with minimal adverse impact on the environment. Proposals will be evaluated against both technical evaluation criteria and cost considerations in accordance with the following procedures and the schedule shown in Figure 1-1.

3.1.1.1 Proposals either not meeting the qualification criteria stated below or which are so grossly and obviously deficient as to be totally unacceptable will not be evaluated.

3.1.1.2 All proposals meeting the qualification criteria will be evaluated by the National Academy of Sciences/National Academy of Engineering (NAS/NAE) through the use of an expert committee. Using the technical evaluation criteria and cost considerations stated below, the NAS/NAE will provide to the DOE a report of their evaluation, including an unranked Best Qualified List (BQL) of sites, i.e., only those sites that have a reasonable chance for being selected as the preferred site. During its evaluation, the NAS/NAE committee will not conduct site visits but may obtain any needed clarifications, if appropriate, from proposers. Proposers may not modify their proposal during or as a result of any such clarification. The DOE may conduct site visits to qualified sites.

3.1.1.3 After review and acceptance of the NAS/NAE report containing the BQL recommendation, the DOE will perform additional detailed evaluation of the BQL proposals utilizing the technical evaluation criteria and cost considerations. During this phase, the DOE may request additional site-specific geological and environmental information of BQL proposers and will conduct confirmatory studies. To ensure the integrity of the DOE's competitive selection process and to prevent the details of proposals still under consideration being made public, the DOE does not intend to authorize the release of the NAS/NAE report until after the DOE has identified the preferred site. The BQL sites will be considered as the reasonable siting alternatives in preparing the SSC Environmental Impact Statement.

3.1.1.4 Using the technical evaluation criteria and cost considerations described below, the Secretary of Energy will then identify the preferred site.

3.1.1.5 Final site selection will be made in accordance with the requirements of the National Environmental Policy Act (NEPA).

3.2 QUALIFICATION CRITERIA

Proposers must demonstrate, certify, or both that the following qualification criteria are met in order to be formally evaluated by the NAS/NAE:

3.2.1 Location entirely in the United States of America.

3.2.2 Land size and configuration to accommodate the SSC facility as specified in this Invitation, including Figure 1-2 and Table B-1.

3.2.3 Absence of cost to the Government for land acquisition.

3.2.4 Capability of providing at least 250 MW of electrical power with at least 500 gpm of industrial water or 200 MW of power with 2,200 gpm of industrial water, or an appropriate interpolated combination.

3.2.5 Absence of known unacceptable environmental impacts from siting, constructing, operating, and decommissioning the SSC. Reasonable mitigation measures may be taken into consideration.

3.3 TECHNICAL EVALUATION CRITERIA

Information provided in the proposals will be evaluated against the technical evaluation criteria in this subsection in determining the BQL and in identifying the preferred site.

3.3.1 Geology and Tunneling

3.3.1.1 Suitability of the topography, geology, and associated geohydrology for efficient and timely construction of the proposed SSC underground structures.

3.3.1.2 Stability of the proposed geology against settlement and seismicity and other features that could adversely affect SSC operations.

3.3.1.3 Installation and operational efficiency resulting from minimal depths for the accelerator complex and experimental halls.

3.3.1.4 Risk of encountering major problems during construction.

3.3.2 Regional Resources

3.3.2.1 Proximity of communities within commuting distance of the proposed SSC facilities capable of supporting the SSC staff, their families, and visitors. Adequacy of community resources--e.g., housing, medical services, community services, educational and research activities, employment opportunities for family members, recreation, and cultural resources--all available on a non-discriminatory basis.

3.3.2.2 Accessibility to the site, e.g., major airport(s), railroads, and highway system serving the vicinity and site.

3.3.2.3 Availability of a regional industrial base and skilled labor pool to support construction and operation of the facility.

3.3.2.4 Extent and type of state, regional, and local administrative and institutional support that will be provided, e.g., assistance in obtaining permits and unifying codes and standards.

3.3.3 Environment

3.3.3.1 Significance of environmental impacts from siting, constructing, operating, and decommissioning the SSC.

3.3.3.2 Projected ability to comply with all applicable, relevant, and appropriate Federal, state, and local environmental/safety requirements within reasonable bounds of time, cost, and litigation risk.

3.3.3.3 Ability of the proposer, the DOE, or both to reasonably mitigate adverse environmental impacts to minimal levels.

3.3.4 Setting

3.3.4.1 Ability of the proposer to deliver defendable title, in accordance with the schedule in Section 2.2.2.4, for land and estates in land that will adequately protect the Government's interest and the integrity of the SSC during construction and operation.

3.3.4.2 Flexibility to adjust the position of the SSC in the nearby vicinity of the proposed location.

3.3.4.3 Presence of natural and man-made features of the region that could adversely affect the siting, construction, and operation of the SSC.

3.3.5 Regional Conditions

3.3.5.1 Presence of man-made disturbances, such as vibration and noise, that could adversely impact the operation of the SSC.

3.3.5.2 Presence of climatic conditions that could adversely impact construction and operation of the SSC.

3.3.6 Utilities

3.3.6.1 Reliability and stability of the electric power generating and transmission grid systems. Flexibility for future expansion.

3.3.6.2 Reliability, quality, and quantity of water to meet the needs of the facility.

3.3.6.3 Availability of fuel, waste disposal, and sewage disposal.

3.4 RELATIVE IMPORTANCE OF TECHNICAL EVALUATION CRITERIA

In descending order of relative importance, the criteria are Geology and Tunneling, Regional Resources, Environment, Setting, Regional Conditions, and Utilities. Under each major criterion heading the subcriteria are listed in descending order of relative importance. However, a serious deficiency in any one subcriterion may prevent the proposal from being included in the BQL.

3.5 COST CONSIDERATIONS

Cost considerations are important to the selection process and will be used in conjunction with the technical evaluation criteria in selecting the most desirable site. The cost and schedule for constructing the SSC will depend upon site features, such as geolgical and geohydrological conditions. The tunnels, access shafts, and experimental halls are major cost elements of the project. The availability of usable buildings and facilities on the proposed site would favorably affect both cost and schedule.

Annual operating costs, including those related to local wage scales, utility rates, site accessibility, etc., must be considered. Operation and construction costs must be evaluated over the long term to achieve an optimum balance. Substantial savings could be achieved through preferential treatment, such as reductions in utility rates, use and other taxes, and road maintenance costs. Environmental mitigation costs may also be an important consideration for both construction and operation.

For each proposal meeting the qualification criteria, a life cycle cost (LCC) estimate will be prepared for the construction phase plus a 25-year operating phase. Any financial or in-kind contributions offered by the proposer, other than the cost of the land, will be considered, as appropriate, in the LCC estimate. The cost of land to the proposer will not be considered in determining the LCC. The NAS/NAE will take into consideration the LCC in determining the merits of proposed sites.

3.6 RELATIVE EMPHASIS BETWEEN TECHNICAL EVALUATION CRITERIA RESULTS AND COST CONSIDERATIONS

Although cost considerations are significant, primary emphasis will be placed on the results from the evaluation of the technical evaluation criteria by the NAS/NAE in the development of their BQL recommendation to the DOE. The DOE will place similar emphasis in its determination of the preferred site. NAS/NAE and DOE, in their overall evaluations of proposals, will consider whether a higher technical evaluation is worth the extra cost of a particular proposal and whether the LCC of a particular proposal is low enough to overcome a lower technical evaluation.